

REMARKS

Reconsideration of this application in view this amendment and the remarks that follow is respectfully requested.

The Office Action of January 11, 2001 rejected claims 8, 10, and 18 under 35 U.S.C. §112. Claims 8, 10, and 18 have been amended. It is believed that these amendments overcome the §112 rejection set forth in the Office Action but that these amendments do not limit the scope of those claims.

Claims 1-5, 8-10, 12-15, 17-19 and 22 were rejected under 35 U.S.C. §102(b) as being anticipated by Breed 5,684,701 ("the '701 patent"). The Office Action stated that the '701 patent teaches use of acoustic sensors 311-314. The sensors 311-314 of the '701 patent are ultrasonic transducers mounted in the vehicle and "are used to identify an object occupying the front passenger seat." Col. 9, lines 22-23. "Ultrasonic transducers 321 and 322 are used to determine the distance from the transducers to the vehicle driver and ultrasonic transducers 323 and 324 are used to measure the distance to the steering wheel mounted airbag module 110 and also to the driver." Col. 9, lines 26-31. "[O]ther information can also be considered by the pattern recognition algorithm such as the position of the occupants, noise, data from anticipatory acoustic or radar sensors, or any other information present in the vehicle which is relevant." Col. 5, lines 60-64. It is respectfully suggested that the sensors of the '701 patent are not acoustic safing sensors "operative to

sense acoustic waves propagating through the vehicle structure during a vehicle crash event and provide a safing signal having a characteristic indicative of the sensed crash event" as is recited in claim 1 of the present application. The presently claimed invention uses an acoustic sensor, not for occupant identification or distance measurement, but for sensing a vehicle crash event and providing a safing function

in response thereto. Furthermore, the '701 patent does not teach a controller "which controls actuation of said occupant protection device in response to both said crash signal and said safing signal indicating the occurrence of a crash event" as is recited in claim 1 (emphasis added). Both the crash signal AND the safing signal must indicate the occurrence of a crash event to actuate the protection device. The ultrasonic transducers 311-314 and 321-324 of the '701 patent are not used to provide an indication of a crash event. The ultrasonic transducers 311-314 and 321-324 of the '701 patent do not sense acoustic waves propagating through the vehicle structure during a vehicle crash event and provide a safing signal having a characteristic indicative of the sensed crash event. The ultrasonic transducers 311-314 and 321-324 of the '701 patent are used for either identification or distance measuring and not used for crash sensing or for providing a safing signal. For these reasons, it is respectfully suggested that claim 1 patentably defines over the '701 patent.

Claims 2-9 depend from claim 1 and are patentable for at least the same reasons claim 1 is patentable.

Claim 10 recites that the acoustic safing sensor senses acoustic waves propagating through the vehicle structure during a vehicle crash event and providing a safing signal having a characteristic indicative of the sensed crash event and a controller controlling actuation of the occupant protection device in response to the sensor signal from any one of a plurality of crash event sensors and the safing

signal from the acoustic safing sensor. This claimed feature is not anticipated by nor remotely suggested by the '701 patent. Therefore, it is respectfully suggested that the presently claimed invention set forth in claim 10 is patentable over the '701 patent and is allowable.

Claims 11-13 depend from claim 10 and are allowable for at least the same reasons claim 10 is allowable.

Claim 14 recites an acoustic sensor to detect acoustic waves propagating through the vehicle structure during a vehicle crash event and providing a safing signal having a characteristic indicative of the sensed crash event. The ultrasonic sensors 311-314 of the '701 patent are used for occupant identification purposes. The ultrasonic sensors 321-324 of the '701 patent are used for sensing position of the occupants. None of the sensors 311-314 or 321-324 are used for detecting acoustic waves propagating through the vehicle structure during a vehicle crash event and providing a safing signal having a characteristic indicative of the sensed crash event as is presently claimed in claim 14. Therefore, claim 14 is patentable over the '701 patent.

Claims 15 and 16 depend from claim 14 and are allowable for the same reasons claim 14 is allowable.

Claim 17 recites the method step of sensing acoustic waves that travel through the vehicle structure during the occurrence of the vehicle crash condition. The ultrasonic sensors 311-314 are used for occupant identification and ultrasonic sensors 321-324 are used to sense occupant

position. None of the sensors 311-314 or 321-324 of the '701 patent sense acoustic waves through the vehicle structure nor do they provide a safing signal in response to the sensed acoustic waves during the vehicle crash condition as is presently claimed. Moreover, the '701 patent does not teach a step of determining the occurrence of a vehicle crash event in response to both the crash event signal and the safing signal indicating the occurrence of a vehicle crash condition as is presently claimed. Therefore, it is respectfully suggested that claim 17 is patentable over the '701 patent.

Claims 18-21 depend from claim 17 and are allowable for at least the same reasons claim 17 is allowable.

Claim 22 recites means for sensing acoustic waves that travel through the vehicle structure in response to the occurrence of the vehicle crash condition and providing a safing signal having a characteristic indicative of a vehicle crash event. The sensors 311-314 and 321-324 of the '701 patent are for occupant identification and distance sensing, respectively, and are different from the sensor means claimed. Furthermore, claim 22 recites controller means for determining the occurrence of a vehicle crash event in response to both

the crash event signal and the safing signal indicating the occurrence of a crash event. The '701 patent has no such teaching. Therefore, claim 22 is patentable over the '701 patent.

The Office Action rejected claims 6, 7, 11, 16, 20, and 21 under 35 U.S.C. §103 as being unpatentable over the '701 patent in view of U.S. Patent No. 6,020,812 to

Thompson et al. ("the '812 patent"). It is respectfully suggested that claims 6, 7, 11, 16, 20, and 21 are allowable for the same reasons set forth above regarding patentability of their associated independent claims from which they depend. As discussed above in detail, the '701 patent uses ultrasonic sensors 311-314 as identification sensors and ultrasonic sensors 321-324 for distance sensing. The sensors 311-314 and 321-324 are not used for crash sensing and are not used in a safing function to provide an indication of a vehicle crash event. The '812 patent states that it is directed to sensing the presence and position of an occupant using one or more reflective capacitive proximity sensors. In discussing the prior art, the '812 patent states that prior systems include infra-red and ultra-sonic transmitters and receivers which generate and receive reflected waves. There is no teaching in the '812 patent of sensing acoustic waves propagating through the vehicle structure during a crash event and providing a safing signal in response to the sensed acoustic waves during the vehicle crash event. Since neither the '701 patent nor the '812 patent have such a teaching, the combination of the

two patents do not provide a teaching of the presently claimed invention.

For all the above-stated reasons, it is respectfully suggested that the presently claimed invention is patentable over the '701 patent and the '812 patent whether taken singularly or in combination.

The Office Action, without making a rejection, states that U.S. Patent No. 6,018,693, No. 5,904,368, No. 5,906,393, No. 5,964,815, and No. 5,900,677. This statement is not specific and, therefore, makes it impossible to make a response other than to state that for the same reasons set forth above with regard to the '701 patent and the '812 patent, claims 1-22 patentably define over these references whether taken singularly or in combination. These references fail to disclose the claimed combination. In particular, these references fail to teach the use of an acoustic sensor for sensing acoustic waves propagating through the vehicle structure during a vehicle crash event and providing a safing signal having a characteristic indicative of the sensed crash event and a controller which controls actuation of an occupant protection device in response to both a crash sensing signal from a crash sensor and the safing signal indicating the occurrence of a crash event.

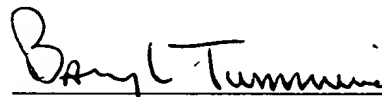
Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned **"VERSION WITH MARKINGS TO SHOW CHANGES MADE."**

Serial No. 09/494,954

In view of the foregoing, it is respectfully submitted that the above identified application is in condition for allowance, and allowance of the above-identified application is respectfully requested.

Please charge any deficiency or credit any overpayment in the fees for this amendment to our Deposit Account No. 20-0090.

Respectfully submitted,



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